

Obesity prevention in the Canadian Arctic

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Impact

The rates of obesity and the associated diet-sensitive chronic diseases in Nunavut continue to rise disproportionately, in comparison with the national averages. Empirical evidence shows that unhealthy dietary and physical activity behaviors create an energy imbalance that results in overweight and obesity among Inuit. The aim of this dissertation was to address the limitations in our understanding of the factors influencing energy balance-related behaviors of Canadian Inuit and explore potential areas for concerted action. Euro-Canadian lifestyles and its domineering influence have remarkably subjugated Inuit cultural traditions and influenced the energy balance-related behaviors in the Canadian Arctic. In contrast to the past, fewer Inuit, independent of age and gender, consume healthy traditional foods nowadays. However, Inuit men and Inuit over 50 years of age consume more traditional foods and less store-bought energy-dense processed foods than women and younger Inuit adults. Further, upon objective assessment of the patterns of physical activity amongst Nunavut Inuit adult including the environmental and motivational determinants of the number of the number of steps taken, it was evident that approximately 10.8% of Nunavut Inuit adult residents are physically active at ≥ 7500 steps/day between summer and winter compared to the national average of 52%. The study also showed that perceived infrastructure, safety and land-use mix are positive environmental associates of steps taken.

Further, the impact of the environmental factors on the number of steps taken were partially mediated by identified motivational regulation, especially in the winter season. Findings from another study that was based on semi-structured photo-elicitation interviews with Inuit adult participants revealed six main factors serving as barriers or enablers to energy balance-related behaviors of community residents, which then present opportunities for necessary action in the population: cost and affordability of healthy choices; availability of traditional foods and activities; weather conditions and climate change; infrastructure and community resources; social networks of families and friends; and effect of substance use. Moreover, within the realms of political control and intervention development, this dissertation reveals that organization-level commitment to implement obesity prevention policies and programs within the

Government of Nunavut Department of Health is generally low. Only 2.9% of the employees were very confident of their organization's commitment to implementing obesity prevention policies and programs, and approximately 33% of the employees were somewhat confident. This dissertation elucidated various factors influencing dietary and physical activity behaviors amongst Inuit including identifying areas of opportunities for action. The dissertation has both scientific and societal value and the findings present good foundational work for future researchers and potential opportunities for intervention developers.

Scientific Impact

The built and food environments in the Arctic are unique and appear to influence energy balance-related behaviors in Nunavut. Environmental factors influencing physical activity among Inuit were explored using the Neighbourhood Environmental Walkability Scale (NEWS), which essentially depended on the components of the built environment in participating communities. The NEWS questionnaire was adapted to the Nunavut environment by rewording some sections and adding a “weather scale” to account for a potential impact of the unique weather on physical activity. There was no prior research involving the use of the NEWS instrument in Nunavut. The adaptation and utility of the instrument in the Arctic environment is a positive step for future investigations and interventions in the region.

Further, recent technological advances and the need for accurate measurements of physical activity in light of unreliability of self-reported data have spurred a tremendous interest in objective assessment of physical activity by pedometers and accelerometers. Thus, in contrast to past studies in the Canadian Arctic that relied on self-reported data, physical activity levels were objectively assessed amongst Nunavut Inuit adults using pedometers. Contrary to accelerometers, pedometers offer the benefits of a more practical, user-friendly, inexpensive and technically feasible alternative for surveillance, screening, health promotion intervention, and program evaluation. Although pedometers are not technically designed to capture pattern, intensity, or type of physical activity, nevertheless, the device detects steps taken with acceptable accuracy, reliability, and convergent with discriminative validity. Additionally, the instrument is more suitable for use amongst the Inuit because of the low literacy levels given the

technical requirements of accelerometers, and the potential high cost of instruments acquisition for health promotion intervention in economically disadvantaged Nunavut communities. Future research that focuses on objectively measured physical activity in the population is therefore relatively made easier and financially attainable given this foundational work with pedometers.

In the qualitative study, one-on-one semi-structured photo-elicitation interviews were conducted to explore Nunavut Inuit perspectives on barriers and enablers of healthy dietary and physical activity behaviors. Photo-elicitation is based on empowerment principles and is congruent with the Indigenous cultures. The visual images in the photographs trigger memories and the approach is often used as “ice breaker” activity, creating a comfortable space for discussions. Photo elicitation also bridges potential cultural gap between the researcher and the respondents. Most of the results of the studies reported in this dissertation are published in international scientific journals. In addition, most of the results have been disseminated at international scientific conferences.

Societal Impact

Results of the objectively measured physical activity and the environmental and motivational regulations of the number of steps taken have been shared with most of the participants in the study and public health teams of the Department of Health. This has generated a lot of interests and discussions, especially on potential areas for health promotion interventions amongst Inuit across settings such as the schools, workplaces, playgrounds, and health services centres. Public health officers and nutritionists are equally exploring opportunities for increasing nutrition education in communities, in response to the findings that showed that younger Inuit under 50 years of age and women consume more store-bought processed foods than healthy traditional foods.

In response to the finding of low organization-level commitment within the Nunavut Department of Health, the level of commitment of Nunavut Public Health System to implement obesity prevention policies and programs has moderately increased in the territory, particularly in the Kivalliq region. The findings of the study on commitment to change efforts was shared

with the Nunavut Directors of Population Health, who are currently prioritizing obesity prevention programs through various health promotion and education campaigns, including organizing Health Fairs in five communities in the Kivalliq region in the past year, and collaborating with community organizations to design, develop, and implement a fitness program, nutrition education, cooking and traditional food harvesting programs. These programs are being implemented through program reprioritization which involved reallocation of existing resources to reduce the burden of obesity-related diseases in the territory.

Upon completion and defense, key findings from this dissertation will be shared with community leaders, the Nunavut Research Institute, and the executive management committee of the Government of Nunavut Department of Health for deliberation and necessary action. High level collaboration between community leaders, the Department of Health and other stakeholders including the Nunavut Department of Community and Government Services, will be fostered to prioritize community development by increasing cultural resources and infrastructural support. These efforts are expected to promote healthy food consumption through traditional food harvesting and sharing, advocacy for improvement on the federal government food subsidy program – the Nutrition North, as well as provision of cultural resources such as Inuit traditional games, improvements to walkways and regular maintenance of sports facilities to increase and sustain physical activity participation. It is anticipated that a well-resourced and supported community will facilitate a population-wide change towards healthier diets and increased physical activity participation.